Remarks

The Applicants respectfully request reconsideration of the rejections and that the case pass to issue in light of the amendments above and the remarks below. By this paper, claims 1, 5, 6, 9, 12, 13, 16-23, and 25 are amended and no other claims are amended, cancelled, or added such that claims 1-25 are pending.

The Examiner submits: (1) that claims 1-5, 9, 11-16, 20, and 22 are anticipated under 35 U.S.C. § 102(e) over U.S. Patent Application Publication No. 2005/0052772 to Barbian; (2) that claims 6 and 17 are obvious under 35 U.S.C. § 103 over the Barbian application in view of U.S. Patent Application Publication No. 2004/0056568 to Carlson; and (3) that claims 7, 8, 10, 18, 19, 21, and 23-25 are obvious under 35 U.S.C. § 103 over the Barbian application and U.S. Patent Application Publication No. 2005/0057847 to Armagost. Each of these rejections is separately addressed below and according to the independent claims associated therewith.

Independent Claim 1

Independent claim 1 stands rejected under 35 U.S.C. § 102(e) as being anticipated by the Barbian application. Independent claim 1 relates to a tape library storage system having at least one tape drive tray that includes a tape drive, power supply, fan, fault indicator light, and temperature sensor mounted therein. The tape drive tray further includes an intelligence module having electronics to control and monitor tape drive tray functions, including electronics to control and monitor the tape drive, power supply, fan, temperature sensor, and fault indicator light. A main library controller is interfaced with the intelligence module. The controller receives tape drive tray function data from the intelligence module and, in response to receipt of the tape drive tray function data, the controller transmits a command to the intelligence module that the intelligence module decodes for use in controlling the tape drive, power supply, fan, and fault indicator light.

The Examiner submits that the Barbian application discloses each of the limitation as recited in independent claim 1. The Applicants respectfully submit that the Barbian application fails to disclose each of the limitations recited in independent claim 1, in particular, the limitations associated with the tape drive tray having a tape drive, power supply, fan, fault indicator light, and temperature sensor mounted therein.

The Barbian application relates to a system and method of operating a storage system wherein tape cartridges included within the storage system include a medium for storing performance data associated with operation of the tape cartridge (Abstract). This information is used for diagnostics or predictive maintenance to determine a likelihood of imminent failure. (paragraph 44). The Examiner cites to paragraph 2 of the Barbian application to disclose the claimed tape drive tray having a tape drive, power supply, fan, fault indicator light, and temperature sensor mounted therein. Paragraph 2 states the following:

> Storage subsystems, such as magnetic tape libraries, are widely used for storing information in digital form. An exemplary tape storage subsystem 100 is shown in FIG. 1. These tape subsystems 100 may include a storage subsystem controller 101 for controlling one or more tape drives 102 contained within the storage subsystem 100 and for controlling other components of the storage subsystem 100, such as the tape picker, which is used to select and load tape cartridges 106 into the tape drives 102. The storage subsystem 100 may be coupled to a host system 110, which transmits I/O requests to the storage subsystem 100 via a host/storage connection 112.

As noted above, paragraph 2 of the Barbian application fails to disclose a tape drive tray having the claimed features. As such, the Applicants respectfully submit that the Barbian application fails to disclose each limitation recited in independent claim 1 such that independent claim 1 is improperly rejected under 35 U.S.C. § 102(e) as being anticipated by the Barbian application.

The Applicants further submit that the Barbian application fails to disclose the additional limitations of independent claim 1 directed toward the main library controller receiving tape drive tray function data and transmitting a command to the intelligence module that the intelligence module decodes for use in controlling the tape drive, power supply, fan, and fault indicator light.

The Barbian application only discloses the use of a main library controller (described in the Barbian application as a host system 210), to issue input/output requests to a tape drive controller 203 in order to command the tape drive controller to read and/or write to an auxiliary memory contained in a tape cartridge 206. The command sent from the host system 210 to the tape drive controller 203 are used only to instruct the tape drive to read and/or write data to the auxiliary memory and are not used to control operations of the tape drive.

The commands issued by the present invention, however, are used to control operation of the tape drive tray, including controlling the tape drive, power supply, fan, and fault indicator light. Because the Barbian application fails to disclose controlling these features, the Applicants respectfully submit that the Barbian application further fails to disclose additional limitations of independent claim 1 such that independent claim 1 and the claims that depend therefrom are patentable and non-obvious over the Barbian application.

Independent Claim 12

Independent claim 12 stands rejected under 35 U.S.C. § 102(e) as being anticipated by the Barbian application. Independent claim 1 relates to a method of transmitting data between multiple tape drive trays and a main library controller. An intelligence module stationary within each tape drive tray controls and monitors tape drive tray functions in response to commands issued from the main library controller. At least two of the intelligence modules perform different protocol conversions to the commands in order to control tape drive tray functions. In this manner, the controller can issue the commands according to a common

protocol such that the intelligence modules are required to convert the commands according to the specific protocols used by the associated tape drive tray.

The Barbian application only discloses transmitting read and write commands to the tape drives. The Barbian application fails to disclose that these read and write commands are issued according to a common protocol such that tape drives receiving the protocols must convert the commands differently to control tape drive tray functions. As such, the Applicants respectfully submit that the Barbian application fails to disclose each limitation recited in independent claim 12 such that independent claim 12 and the claims that depend therefrom are patentable and non-obvious over the Barbian application.

Dependent claim 16 depends from patentable independent claim 12 and includes additional limitations believed to further differentiate the present invention over the Barbian application. In particular, dependent claim 16 includes additional limitations that require the main library controller to transmit the same command, according to the same common protocol, to at least two intelligence modules such that the at least two intelligence modules convert the same command differently in order to control the same tape drive function. The Barbian application fails to disclose issuing the same command to control the same type drive function whereby that same command is converted differently for each of the at least two intelligence modules receiving the command.

Independent Claim 23

Independent claim 23 stands rejected under 35 U.S.C. § 103 as being unpatentable over the Barbian and Armagost applications. Independent claim 23 relates to a method of transmitting data from tape drive trays to a main library controller. The method includes the main library controller receiving status information from the tape drive trays and, in response thereto, issuing commands for controlling the tape drive trays. The commands are issued according to a common protocol such that the at least two intelligence modules convert the commands differently to control the same tape drive trays. Periodically, a loopback feature

included within each tape drive tray loops back at least one of the commands to the main library controller. The main library controller uses the looped back command to verify integrity of at least one communication line used by the main library controller to communicate with the tape drive trays.

The Barbian application fails to disclose issuing a command according to a common protocol to multiple intelligence modules wherein each module converts the command differently to control tape drive tray functions. The Applicants submit that the Armagost application fails to make up for the deficiencies of the Barbian application such that independent claim 23 is patentable and non-obvious over the cited references. Moreover, the Applicants submit that neither of the cited references disclose a loop back feature included within each tape drive to loop back at least one of the commands to the main library controller for use by the main library controller in verifying integrity of at least one communication line used by the main library controller to communicate with the tape drive trays. As such, the Applicants respectfully submit that independent claim 23 and the dependent claim that depends therefrom are patentable and non-obvious over the cited references.

Independent Claim 25

Independent claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Barbian and Armagost applications. Independent claim 25 relates to a method for controlling devices located within a tape drive tray. The method includes periodically looping back control data communicated from the tape drive tray to the main library controller. And, thereafter, verifying integrity of at least one communication line used by the main library controller to communicate with the at least one tape drive based on a loopback portion of the control data. Both of the cited references are silent with respect to looping back the control data, and therefore, fail to provide any suggestion, teaching, or motivation for disclosing the claim limitations. As such, the Applicants respectfully submit that independent claim 25 is patentable and non-obvious over the cited references.

Conclusion

In view of the foregoing, the Applicants respectfully submit that each rejection has been replied to and traversed and that the case is in condition to pass to issue. The Examiner is respectfully requested to pass the case to issue and is invited to contact the undersigned if it would further the prosecution and the case to issue.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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